

Power Control Assembly (PCA)

Launch Vehicle Power Controller

[PRODUCT OVERVIEW]

Power Control Assembly (PCA)

Invocon's Power Control Assembly (PCA) provides complete power control for small launch vehicles in a robust miniature package. The PCA manages two 28V power sources across four configurable power output channels, seamlessly switching between an external power control system and an onboard battery while supporting battery charging to simplify pre-launch vehicle maintenance. The PCA is designed to accommodate both Invocon's Smart Rechargeable Battery and standard rechargeable batteries.



[CAPABILITIES]

Features & Applications

Key Features

◆ Dropout-Free Internal/External Power Switching

Designed specifically to prevent power dropouts when transitioning between internal battery and external ground power, protecting sensitive avionics loads.

◆ Configurable Auxiliary Output

5V or 12V auxiliary output configurable for source (switched or un-switched 28V channel) and voltage level to match payload requirements.

◆ Two Independent Switched Output

Two switched 28V outputs allow selective power distribution to multiple subsystem loads.

◆ Over-Voltage Protection

One switched 28V output includes configurable over-voltage protection for protection of sensitive downstream loads.

◆ Standard Sequencing Semantics

Supports All Fire, No Fire, Power Backup 1, and Power Backup 2 sequencing for compatibility with standard small launch vehicle avionics architectures.

◆ Battery Charging Support

Integrated battery charging support simplifies pre-launch vehicle maintenance by enabling battery top-off without removing the assembly.

◆ UMBI/Lanyard Interface

UMBI and lanyard connections support standard ground handling and launch sequencing operations.

Typical Applications

- ◆ **Small Launch Vehicle Avionics Power**
Provides centralized power switching and distribution for all onboard avionics during ground operations and flight.
- ◆ **Pre-Launch Battery Maintenance**
Manages battery charging and health monitoring to ensure sufficient mission power prior to launch.
- ◆ **Internal/External Power Transition**
Handles the critical umbilical-pull transition from external ground power to internal battery power without interruption.
- ◆ **Payload Power Distribution**
Supplies regulated 5V or 12V auxiliary power to payload electronics requiring lower voltage rails.

[TECHNICAL DATA]

Key Specifications

SPECIFICATION	VALUE
ELECTRICAL	
Input Voltage	22.5 to 34Vdc at up to 12.0 A
Total Output Current (All channels combined)	Up to 12.0 A
Unswitched Output Current (Group A, B or C)	
Individual	Up to 4.0 A
Combined	Up to 12.0 A
Switched #1 Output Current (Group A or B)	
Individual	Up to 4.0 A
Combined	Up to 5.0 A
Switched #2 Output Current (Group A or B)	
Individual	Up to 4.0 A
Combined	Up to 5.0 A
Output Current (5V / 12V auxiliary)	Up to 2.0 A
Switched #1 & Switched #2 Output	Normally Closed (power provided to load) Typical GSE con ops force these open prior to power on.
MECHANICAL	
Size (L x W x H)	4.85" x 4.4" x 1.4" (excluding connectors)
Weight	1.5 lbs.
Case Material	6061 aluminum, Alodine coated
ENVIRONMENTAL	
Operating Temperature	-24° to +61°C